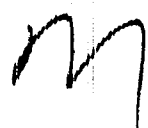


1/2 015 UNCLASSIFIED PROCESSING DATE--18OCT70  
TITLE--ON THE THEORY OF THE RESOLVING TIME OF SCINTILLATION COUNTERS -U-  
AUTHOR-(02)-AKIMOV, YU.K., MEDVED, S.V.   
COUNTRY OF INFO--USSR  
SOURCE--NUCL. INSTRUM. METHODS; 78: 151-3(1970)  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY  
TOPIC TAGS--SCINTILLATION COUNTER, TIME CONSTANT, PHOTO ELECTRON, CURRENT  
DENSITY  
  
CONTROL MARKING--NO RESTRICTIONS  
  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1983/1944 STEP NO--NE/0000/70/076/0007015180153  
CIRC ACCESSION NO--AP0054745

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--190CT70

CIRC ACCESSION NO--AP0054745

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBLEM OF THE DETERMINATION OF TIME FLUCTUATIONS IN SCINTILLATION COUNTERS HAS BEEN CONSIDERED WITH AN ARBITRARY TOTAL MEAN NUMBER OF PHOTOELECTRONS  $R$  SUBO DURING A SCINTILLATION FLASH. THE FLUCTUATIONS OF  $R$  HAVE BEEN TAKEN INTO CONSIDERATION. THE RESULTS OF CALCULATIONS FOR THE LEADING EDGE METHOD ARE GIVEN WHICH SHOW THE EFFECT OF VARIOUS FACTORS AND PARAMETERS OF A SCINTILLATION COUNTER UPON ITS RESOLVING TIME. (AUTH).  
FACILITY: JOINT INST. FOR NUCLEAR RESEARCH, DUBNA, USSR.

UNCLASSIFIED

USSR

UDC 541.49+541.65+546.18+546.31

SINYAVSKAYA, E. I., SHEKA, Z. A., MEDVED', T. YA., PISAREVA, S. A.,  
KABACHIK, M. I., Institute of Physical Chemistry—imeni A. V.  
Pisarzhevski, Academy of Sciences, USSR, Kiev, and Institute of  
Heteroorganic Compounds, Academy of Sciences, USSR, Moscow

"Reaction of Some Metal Halides with Tetraphenyl- and Tetra-  
butylalkylenediphosphine Dioxides"

Moscow, Zhurnal Neorganicheskoi Khimii, vol 18, No 9, Sept 73,  
pp 2427-2433

Abstract: The reaction of alkali metal halides and cupric chlo-  
ride with  $(C_6H_5)_2P(O)(CH_2)_n P(O)(C_6H_5)_2$  ( $n = 1$  to  $3$ ) and  $(C_4H_9)_2P-$   
 $(O)(CH_2)_n P(O)(C_4H_9)_2$  ( $n = 1$  to  $6$ ) was studied by measuring the  
electrical conductivity of the respective salts in nonaqueous sol-  
vents. Owing to formation of electrically neutral complexes, the  
electrical conductivity decreased when the subject compounds were  
added to LiCl or LiI or to  $CuCl_2$ . The most effective complexes  
of the inorganic compounds were the compounds with the methylene  
bridge with  $n = 1$  or  $2$ . With higher  $n$  values the complex  
1/2

USSR

SINYAVSKAYA, E. I., et al., Zhurnal Neorganicheskoi Khimii, vol 18, No 9, Sept 1973, pp 2427-2433

formation decreased sharply. This is in agreement with published data on protonation in such dioxides, which show formation of stable cyclic structures for  $n = 1$  or  $2$ .

2/2

USSR-

UDC 541.12.542.61.541.6.547.1'118

KABACHNIK, M. I., LASKORIN, B. N., BERTINA, L. E., ~~ANDREYEV, T. YA.~~, KOSSEYKH, V. G., YUDIN, K. S., BERKMAN, Z. A., and NEPRYAKHIN, A. M., Institute of Hetero-Organic Compounds, USSR Academy of Sciences

"Dependence of the Extraction Ability of the Dioxides of Tetraarylmethylene Diphosphines Upon Their Structure"

Moscow, Izvestiya Akad. Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 72, pp 65-70

Abstract: The connection between extraction ability and structure is currently being widely studied, but so far only in the case of monodentate neutral organophosphorus compounds; the corresponding bidentate compounds, with two phosphoryl groups in the molecule, have gone completely unstudied.

Using the extractant dilution method, the authors determined the composition of the extracting complexes of uranyl nitrate with dioxides of the tetraarylmethylene diphosphines containing various substitutes in the meta- and para-positions of the phenyl rings. Effective extraction constants of uranyl nitrate for a series of tetra-substituted dioxides of the methylene-diphosphines were computed. Effective extraction constants for complexes with three molecules of the extractant were found to correlate well with the Hammett constant, and with the  $\sigma^+$  constant -- something not observed in the case of

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USSR

KABACHNIK, M. I., et al., Izvestiya Akad. Nauk SSSR, Seriya Khimicheskaya,  
No 1, Jan 72, pp 65-70

complexes with two molecules of the dioxide. Finally, the connection between the extraction ability of the diphosphines and their alkalinity was found to be a linear one. Various tables and graphs are included in the paper.

2/2

USSR

UDC 541.18.04:547.1'118

MATROSOV, YE. I., KULUMBETOVA, K. ZH., ARKHIPOVA, L. I., MEDVED', T. A.,  
and KABANCHIK, M. I., Institute of Hetero-Organic Compounds, USSR Academy of  
Sciences

"Acid-Base Properties of Substituted Tetraphenyl-Methylene-Diphosphine Dioxides"  
Moscow, Izvestiya Akad. Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 72,  
pp 199-201

Abstract: Potentiometric titration with perchloric acid of the dioxides  
of tetraphenylmethylenediphosphines substituted in the methylene bridge  
was carried out in nitromethane. The obtained values of the alkalinity  
constant  $pK_a$  ( $CH_3NO_2$ ) were found to be linearly related to the  $\sigma^+$ -con-  
stants of the substitutes.

1/1

USSR

UDC 547.241.07

KABACHNIK, M. I., MEDVED', T. Ya., LASTOVSKIY, R. P., KOLPAKOVA, I. D.,  
URINOVICH, Ye. M., KRINITSKAYA, L. V., and MIRONOVA, Ye. I.

"A Method of Making Hydroxyethylidenediphosphonic Acid"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obrabotsy, tovarnyye znaki,  
No 5, Feb 71, Author's Certificate No 292984, Division C, filed 2 Jun 69,  
published 15 Jan 71, p 101

Translation: This Author's Certificate introduces: 1. A method of making hydroxyethylidenediphosphonic acid by interacting phosphorus trichloride with acetic acid in the presence of heat. As a distinguishing feature of the patent, the process is simplified by adding acetic anhydride to the initial mixture. 2. A modification of this method distinguished by the fact that the phosphorus trichloride, acetic acid and acetic anhydride are present in the mixture in a molar ratio of 1:2:1. 3. A modification of this method in which the process is carried out at a temperature of 35-120°C.

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USSR

UDC 543.422.4:661.718.1

MATROSOV, YE. I., MEJVED', T. YA., and KABACHNIK, M. I., Institute of Element-Organic Compounds, Academy of Sciences USSR

"Infrared Spectra of Substituted Tetraphenylmethylenediphosphine Dioxides"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 5, 1971, pp 1094-1096

Abstract: Infrared spectra of the dioxides of tetraphenylmethylenediphosphine substituted in the methylene bridge  $[\text{Ph}_2\text{P}(\text{O})]_2\text{CHR}$  revealed interesting behavior of the bands corresponding to the absorption of the P=O and C-H groups. Evidently, in the compounds investigated the multiplet status of the vibrational bands of the P=O groups is due mainly to their participation in intermolecular hydrogen bonding with the hydrogen atoms of the methylene bridge of the neighboring molecule. Thus, the ability of C-H bridging groups in methylene dioxides to form hydrogen bonds was discovered. This is in close agreement with the lability of the hydrogen atom in these groups in presence of organic bases. Capability of forming hydrogen bonds is shown by methylene groups of the oxide of diphenylphenacylphosphine  $\text{Ph}_2\text{P}(\text{O})\text{CH}_2\text{C}(\text{O})\text{Ph}$  in whose spectra intense vibrational bands of the C-H groups were detected at 2920 and 2800  $\text{cm}^{-1}$ .

1/1

USSR

UDC 66.095.25 + 661.718.1

POLIKARPOV, YU. M., KULUMBETOVA, K. ZH., MEDVED, T. YA.,  
KABACHNIK, M. I., Institute of Organo Elemental Compounds, Moscow,  
Academy of Sciences USSR

"Alkylation of Tetraphenylmethylenediphosphine Dioxide"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6,  
Jun 70, pp 1326-1329

Abstract: Alkylation of the potassium salt of tetraphenylmethylenediphosphine dioxide (I) with alkyl halides in boiling xylene gave a series of tetraphenyl-(R)-alkylenediphosphine dioxides (R derivative and m.p. in °C are reported):  $C_2H_5-$ , 257-258;  $C_4H_9-$ , 204-206;  $C_6H_{13}-$ , 172-173;  $C_{12}H_{25}-$ , 116-118;  $C_6H_5CH_2-$ , 217-218. In a similar fashion (I) and  $CH_2Br_2$  gave tetraphenylmethylenediphosphine dioxide and its vinylidene homologue, m.p. 197-199°; 1,6-dibromohexane and (I) gave oxaphenylhexamethylenetetraphosphine tetroxide, m.p. 302-304°, while the p-xylenedibromide yielded octaphenyl-p-xylenetetraphosphine tetroxide m.p. 324-325°, and 1,5-dibromopentane gave tetraphenylcyclohexylenediphosphine dioxide, m.p. 254-255°.

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1/2 020 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--SYNTHESIS AND COMPLEXING PROPERTIES OF ALPHA, LPHAL PRINE N, N  
PRIME, ETHYLENEDIAMINEBIS ALPHA ARYLMETHYLPHOSPHINIC ACIDS -U-  
AUTHOR-(04)-DYATLOVA, N.M., MEDVED, T.YA., RUDOMINO, M.Y., KABACHNIK, M.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAO. NAUK SSSR, SER. KHIM. 1970, 141, 815-19

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC SYNTHESIS, COMPLEX COMPOUND, SCHIFF BASE,  
ETHYLENEDIAMINE, ORGANIC PHOSPHORUS COMPOUND, THERMAL DECOMPOSITION,  
COPPER COMPLEX, NICKEL COMPLEX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3006/1474

STEP NO--UR/0062/70/000/004/0815/0819

CIRC ACCESSION NO--AP0135143

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--27NOV70  
CIRC ACCESSION NO--AP0135143  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING 9.05 G SCHIFF BASE (PREP. BY HEATING (CH SUB2 NH SUB2) SUB2 AND BZH AT 60DEGREES) WITH 8.3 G MEP(O)(H)OET IN N ATM. 1.5 HR AT 70DEGREES IN THE PRESENCE OF A CATALYTIC AHT. ETONA ETOH GAVE AFTER TREATMENT AT 0DEGREES WITH DRY HCL IN DRY ET SUB2 O, 47.4PERCENT (CH SUB2 NHCHPHP(O), ME(OET)) SUB2.2HCL, DECOMPO. 134-8DEGREES; HEATED AT 145-55DEGREES TO 21.6PERCENT WT. LOSS, AND HEATING THE RESIDUE WITH H SUB2 O GAVE 42.5PERCENT (CH SUB2 NHCHPHP(O)ME(OH)) SUB2 (I), DECOMPO. 241-2DEGREES. SIMILAR REACTION WITH THE SCHIFF BASE FROM SALICYLALDEHYDE GAVE (CH SUB2, NHCHIC SUB6 H SUB4 OH,O)P(O)ME(OH)) SUB2 (II), DECOMPO. 223-4DEGREES. THESE ACIDS GAVE THE FOLLOWING VALUES OF THEIR RESP. PKA: I, 4.61 AND 7.84; AND II, 4.78, 7.55, 10.56 AND 11.58, FROM POTENTIOMETRIC TITRATION DATA. THE FOLLOWING STABILITY CONSTS. (LOG KAPPA) WERE CALC. FROM TITRN. DATA WITH THE INDICATED METAL IONS, FOR THE COMPLEXES FORMED BY THE ACIDS WITH THE METALS: I; NI PRIME POSITIVE POSITIVE 6.91, CU PRIME POSITIVE POSITIVE 10.32; II; NI PRIME POSITIVE POSITIVE 7.06, 11.46, 15.59, MINUS, MINUS (FOR MH SUB2 X, MHX, MX, MH SUB2 X) SUB2 AND MX SUB2 TYPES OF COMPLEXES, RESP.); CU PRIME POSITIVE POSITIVE 10.98, 16.74, 20.14, MINUS, MINUS; FE PRIME POSITIVE POSITIVE POSITIVE MINUS, MINUS, 31.25, MINUS, MINUS; AL PRIME POSITIVE POSITIVE POSITIVE MINUS, 15.36, GREATER THAN 20, MINUS, MINUS; AND TIO PRIME POSITIVE POSITIVE POSITIVE, 8.46, OVER 15. TII(IV) CAN BE DETD. BY MEANS OF I AS A COMPLEXING AGENT, THROUGH SPECTROPHOTOMETRY OF THE COMPLEX. FACILITY: INST. ELEMENTORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

USSR

M UDC 542.91 + 541.49 + 661.718.1

DYATLOVA, N. M., MEDVED', T. YA., RUDOMINO, M. V. and KABACHNIK, M. I., Institute of Organo-Elemental Compounds, Moscow, Academy of Sciences, USSR, and Institute of Chemical Reagents and Ultrapure Materials, State Committee for Chemistry

"Synthesis and Complexing Properties of Ethylenediaminobisarylmethylphosphinic Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 815-819

Abstract: The acids were obtained by condensation of monoethylester of methylphosphinic acid with Schiff bases of ethylenediamine and aromatic aldehydes in the presence of catalytic amounts of sodium ethoxide. With benzaldehyde, the ethyl ester of ethylenediaminobisbenzylmethylphosphinic acid is obtained as a dihydrochloride, which can be converted to the free acid by thermal self-saponification. When salicylaldehyde is used, the free acid is obtained directly. The yields were 42 and 20% respectively. Both acids are colorless crystalline compounds insoluble in water or organic solvents, soluble in dilute acids and bases. Analysis of three types  
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USSR

DYATLOVA, N. M., et al, Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 815-819

of materials, containing phosphinic, phosphonous and phosphonic groups showed that phosphonic groups exhibit strongest complexing properties. It was determined that ethylenediaminobis-o-hydroxybenzylmethylphosphinic acid may be used for spectrophotometric determination of titanium (IV).

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USSR

UDC 661.718.1:541.133

KABACHNIK, M. I., MATROSOV, Ye. I., MEDVED', T. Ya., PISAREVA, S. A., and ROMANOVA, I. B.; Institute of Organoelemental Compounds, Academy of Sciences USSR, Moscow

"Acid-Base Properties of Tetraalkyl(Aryl)alkylenediphosphine Dioxides"

Kiev, Teoreticheskaya i Eksperimental'naya Khimiya, Vol 8, No 3, 1972, pp 361-365

Abstract: Potentiometric titration was carried out with perchloric acid in nitromethane of three series of alkylene-diphosphine dioxides with different numbers of methylene links in a bridge of a general formula  $R_2P(O)-(CH_2)_n-P(O)R_2$  (where:  $n = 1-4$ ,  $R = C_6H_5, C_4H_9, C_2H_5$ ). Protonation proceeds in all cases through a stage of ring formation with an intramolecular hydrogen bond and participation of the both phosphoryl groups. On the curves of potentiometric titration of the phosphine dioxides with propylene and butylene bridges ( $n = 3, 4$ ) there appears in the acidic region the second potential jump, which, apparently, corresponds to a process connected with ring cleavage and protonation of the second phosphoryl group. The values of  $pK_a (CH_3NO_2)$  of the second stages substantially differ from the first ones. In this respect the investigated phosphine dioxides exhibit a definite similarity to the

USSR

KABACHNIK, M. I., et al., Teoreticheskaya i Eksperimental'naya Khimiya, Vol 8,  
No 3, 1972, pp 361-365

behavior of dibasic carboxylic acids in which the formation in monoanions of  
intramolecular hydrogen bonds leads to a considerable difference of  $K_1$  and  $K_2$ .

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USSR

UDC [661.7:547.297.2]+661.718.1

KOLPAKOVA, I. O., KABACHNIK, M. I., MEDVED', T. YA., LASTOVSKIY, R. P.,  
KRINITSKAYA, L. V., URINOVICH, YE. M., and SMIRNOVA, V. A.

"Simultaneous Production of Acetyl Chloride and Hydroxyethylenediphosphonic  
Acid"

Moscow, Khimicheskaya Promyshlennost', No 8, 1972, pp 576-578

Abstract: Results are reported of the study of optimal reaction conditions for the simultaneous production of acetyl chloride and hydroxyethylenediphosphonic acid (HEDPA). The yield of HEDPA reached 84% when phosphorus trichloride was reacted with a mixture of acetic acid and acetic anhydride. The structure of HEDPA was proven by parallel synthesis from acetyl phosphonic acid diethyl ester and diethyl phosphite. Further proof was obtained by infrared spectroscopic analysis and potentiometric titration.

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1/2 013 UNCLASSIFIED PROCESSING DATE--L1DEC70  
TITLE--REACTIVITY OF CELLULOSE. II. EFFECT OF CELLULOSE DEHYDRATION  
CONDITIONS ON THE REACTIVITY OF CELLULOSE DURING ACETYLATION -U-  
AUTHOR-(03)-KUZLOV, N.A., MEDVED, L.N., TARAKANOV, O.G.

COUNTRY OF INFO--USSR

SOURCE--Zh. Prikl. Khim. (Leningrad) 1970, 43(4), 940-3

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--CELLULOSE, NATURAL FIBER, DEHYDRATION, HYDROGEN BONDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3008/1498

STEP NO---UR/0080/70/043/004/0940/0943

CIRC ACCESSION NO--AP0138499

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--APC138499

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACETYLATION RATE CONSTS. (K) OF VARIOUS COTTON CELLULOSE (I) SAMPLES OBTAINED BY SCOURING, CHLORINATION, ALK. TREATMENT, HYPOCHLORITE BLEACHING, PEROXIDE BLEACHING, OR ACID TREATMENT WERE OBTAINED. THERE IS SOME CORRESPONDENCE BETWEEN THE SP. SURFACE OF I AND K; HOWEVER, THE MAIN FACTOR IN K DETN. IS THE RELATION BETWEEN THE INTER AND INTRAMOL. H-BONDING.

UNCLASSIFIED

USSR

UDC 669.295.054.79

5

GALITSKIY, N. V., BAYBEKOV, M. K., DROZHNEV, V. I., CHEPRASON, I. M.,  
MEDVEDCHIKOV, E. P., BARKOVA, N. P., ZAVADOVSKAYA, V. N., SELEDTSOV, D. K.,  
and KORENDYASEV, M. I.

"Reprocessing Waste Titanium and Its Alloys in a Chloride Melt"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya  
Publishing House, Vol 6, 1970, pp 135-140

Translation: Results are given of experimental-industrial research on the reprocessing of ungraded waste mixtures of chips from different titanium alloys by chlorinating in a chloride melt. An experimental batch of marketable titanium sponge was obtained. The characteristics of the raw material used, the chlorine gas, the coke, and the working fusion are given, along with a description of the technological conditions, the chart for preparing chips for chlorination, and the technological equipment charts for the chlorination and cleaning conversions. An analysis is made of the distribution of alloying elements in the products of chlorination. Basic expenditure coefficients, calculated per ton of industrial titanium tetrachloride, are deduced, and data are given on the quality of the  $TiCl_4$  and the sponge titanium obtained. Three illustrations and one table.

1/1

1/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--UN SURE MECHANISMS OF BRONCHOSPASM IN PATIENTS WITH BRONCHIAL  
ASTHMA -U-  
AUTHOR-(03)-DETSENKO, YA.N., MEDVEDCHUK, G.YA., YEREMEYEV, V.G.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 5, PP 90-92

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PULMONARY DISEASE, HYPOCAPNIA, HYPOXEMIA, HYPERCAPNIA,  
RESPIRATORY DRUG

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1738

STEP NO--UK/0475/70/000/005/0090/0092

CIRC ACCESSION NO--AP0129106

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0129106

ABSTRACT/EXTRACT--(U) GP-3- ABSTRACT. THE BRONCHIAL PATENCY CHANGES HAVE BEEN STUDIED IN 22 HEALTH PERSONS AND 14 PATIENTS WITH BRONCHIAL ASTHMA AND ASTHMATIC BRONCHITIS UNDER THE EFFECT OF HYPOCAPNIA, HYPERCAPNIA AND HYPOXEMIA. SIGNS OF MILD BRONCHOSPASM WERE FREQUENTLY FOUND DUE TO THESE EXCITATIONS OF THE RECEPTORS OF THE BRONCHO PULMONARY APPARATUS. A STUDY OF 35 PATIENTS WITH ASTHMA BRONCHIALE REVEALED A GROUP OF 10 PATIENTS WITH THE SO CALLED HYPERVENTILATION SYNDROME, IN WHICH DRUGS INHIBITING THE RESPIRATORY CENTER ARE INDICATED. FACILITY: KAFEDRA FAKUL'TETSKOY TERAPII, ZAPOROZH'SKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

USSR

UDC: 681.327.11

DENBNOVETSKIY, S. V., LESKIN, V. F., MEDVEDENKO, B. I., SEMENOV, G. F.,  
SIGORSKIY, V. P., TSYGANOK, B. A., PEIRENKO, A. I., Kiev "Order of Lenin"  
Polytechnical Institute imeni the Fiftieth Anniversary of the Great October  
Socialist Revolution

"A Device for Mapping Information"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, "Tovarnyye Znaki",  
No 10, Apr 72, Author's Certificate No 332455, Division G, filed 22 May 70,  
published 14 Mar 72, p 193

Translation: This Author's Certificate introduces a device for mapping  
information. The device contains a cathode ray tube with deflecting system,  
and amplifiers. As a distinguishing feature of the patent, the clarity and  
contrast of the reproduction are improved by adding a deflecting micro-  
coil placed in the throat of the CRT and connected through a shaper ampli-  
fier to the output of the video amplifier.

1/1

USSR

UIC 681.3:53.085.3

DENBNOVETSKIY, S. V., and MEDVEDENKO, B. I., Kiev Polytechnical Institute  
imeni the Fiftieth Anniversary of the Great October Socialist Revolution

"A Device for Reproducing and Converting Images"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,  
No 22, Aug 71, Author's Certificate No 309358, Division G, Filed 6 Oct 69,  
published 9 Jul 71, p 187

Translation: This Author's Certificate introduces a device for reproducing and converting images which contains a two-beam cathode-ray memory tube with recording amplifier, recording beam deflection circuit, television readout scanning amplifier, and readout circuit. Also incorporated in the device is a television display module with video amplifier, cathode-ray display, and television scanning circuit. In addition, the installation includes a control panel and a light pen module with counter, register, master clock, and pulse shaper which are connected to a digital computer through a digital-analog converter, sign generator, and switches. As a distinguishing feature of the patent, for purposes of autonomous conversion of images reproduced on the screen of the CRT, the device includes an additional cathode-ray memory tube and commutation module with frequency  
1/2

USSR

DENBNOVETSKIY, S. V., and MEDVEDENKO, B. I., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 22, Aug 71, Author's Certificate No 309358, Division G, filed 6 Oct 69, published 9 Jul 71, p 187

divider, pulse-shaping circuit, transposition and detection pulse selectors, transposition decoder, and auxiliary television scanning circuit. The frequency divider is connected to the television scanning circuit, the transposition selector is connected through a switch to the recording amplifier, and the pulse-shaping circuit is connected to the readout circuit. The auxiliary television scanning circuit is connected to the recording beam deflection circuit. The transposition decoder and pulse-shaping circuit are connected to the control panel, the recording amplifier of the additional cathode-ray memory tube module is connected to the pulse shaper, and the recording beam deflection circuit and television scanning readout amplifier are connected to the television scanning circuit. The readout circuit of the additional cathode-ray memory tube module is connected through a switch to the pulse-shaping circuit.

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USSR

UDC 681.142.62

DENBNOVETSKIY, S. V., MEDVEDENKO, B. I.

"Use of Cathode-Ray Memory Tubes in Systems of Graphic Interaction  
Between an Operator and a Digital Computer"

Avtomatiz. proyektir. v elektron. Resp. mezhved. nauch.-tekhn. sb. (Design Automation in Electronics. Republic Interdepartmental Scientific and Technical Collection), vyp. 2, Kiev, "Tekhnika", 1970, pp 143-151

Abstract: It is shown that cathode-ray memory tubes can be effectively used in graphic data output devices on digital computers. The use of cathode-ray memory tubes as a buffer memory eliminates losses of machine time for image regeneration, and reduces the severity of requirements for speed in the systems for formation of the image on the CRT screen. An auxiliary cathode-ray memory tube used as an immediate-access storage unit enables realization of a self-contained graphic device. Six illustrations, bibliography of four titles.

1/1

USSR

UDC 621.396.963

M  
DENBNOVETSKIY, S. V., MEDVEDENKO, B. I., SAVCHENKO, V. A.

"Dynamic Raster Display"

USSR Author's Certificate No 253179, Filed 30 Jul 68, Published 24 Feb 70  
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9G50P)

Translation: This author's certificate introduces a dynamic raster display for displaying radar information containing a two-beam storage cathode ray tube with multiple reading, a recording beam modulator which is connected to the input unit and the recording line scanning generator via an AND gate. The output electrode is connected to the signal processing unit which is connected to the modulator of the reading beam of the storage cathode ray tube and the modulator of the kinescope. The device also contains an image erasure generator, a synchronizer and a shaper for the vertical deviation of the recording and reading beams. In order to insure step displacement of the image with line-by-line renewal of the information, counters are included between the input unit and the shaper of vertical recording beam deflections and also between the synchronizer and the shaper of vertical reading beam deflections. The signals from these counters are fed to a decoder which is connected to the inputs of the frame scanning generator of the kinescope and the image erasure generator.

1/1

USSR

KAYTMAZOV, S. D., MEDVEDEV, A. A., and PROKHOROV, A. M., Physics Institute  
imeni P. N. Lebedev, USSR Academy of Sciences

"The Effect of a Magnetic Field at 400 kOe on the Plasma of a Laser Spark"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 14,  
No 5, 5 Sep 71, pp 314-316

Abstract: The possibility that a magnetic field has an active influence on the geometry of a laser spark is due, in the authors' opinion, to the necessity of simultaneously satisfying two conditions: the magnetic pressure must be greater than the gas-kinetic pressure of the plasma, and, consequently, the relationship between field and temperature of the plasma is determined by the condition  $T < H^2/8\pi nk$ . In order to eliminate any significant diffusion of the plasma into the field, the skin-layer must not exceed the radius of the spark ( $r$ ). This leads to the relationship  $T > 6.3 \cdot 10^8 r^{2/3} r^{-4/3}$  (where  $r$  is the time constant of the spark), since the skin layer  $d = c\sqrt{r/2\pi\lambda}$ , and the electrical conductivity of the plasma  $\lambda = 10^7 T^{3/2}/z$ . Unless the first condition is satisfied, the plasma is dispersed, squeezing out the magnetic field; if the second condition is not satisfied, it diffuses into the field.

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USSR

KAYTMAZOV, S. D., et al., Pis ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 14, No 5, 5 Sep 71, pp 314-316

Thus, for the magnetic field to have any significant effect on the geometry of the spark it must be so high that, with lowering of the pressure of the plasma to the level of the magnetic pressure, its temperature is sufficiently high that no plasma diffuses into the field. This leads to the conclusion that a threshold value of the magnetic field must exist, beginning from which the field actively influences the separation of the spark. This results in finding a value of 300 kOe for the threshold value of the magnetic field. Bearing this in mind, the authors investigated a laser sample in fields of 400 kOe and built special equipment to carry out the investigation. The significant influence which the magnetic field exerts on the geometry of the spark in these investigations permits the authors to independently evaluate the lower boundary of the plasma temperature. The characteristic parameters of the spark are  $r = 0.1$  cm,  $\tau = 3 \cdot 10^{-7}$  sec, whence it follows that the plasma temperature is more than  $6 \cdot 10^5$  oK. The article contains 2 illustrations and 5 bibliographic entries.

2/2

1/2 036 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--CHROMIUM PHOSPHATE HEXAHYDRATE DEHYDRATION PRODUCTS -U-  
AUTHOR--(04)--LAVROV, A.V., MEDVEDEV, A.A., CHUDINOVA, N.N., TANANAYEV, I.V.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 503-10  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--PHASE ANALYSIS, DEHYDRATION, CHROMIUM COMPOUND, PHOSPHATE,  
PAPER CHROMATOGRAPHY, IR SPECTRUM, X RAY ANALYSIS, THERMAL EFFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1994/1887 STEP NO--UR/0363/70/006/003/0503/0510  
CIRC ACCESSION NO--AP0115706  
UNCLASSIFIED

2/2 036

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0115706

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THERMAL DEHYDRATION OF CRPO  
SUB4.6H SUB2 O WAS STUDIED BY PAPER CHROMATOG., IR SPECTROSCOPY, AND X  
RAY RAY PHASE ANAL. AT SIMILIAR TO 300DEGREES AN AMORPHOUS PRODUCT  
FORMS WHICH CCNTAINS PYROPHOSPHATE IONS (TOGETHER WITH THE  
ORTHOPHOSPHATE), WHICH AT 1000DEGREES CHANGES TO BETA CRPO SUB4. AT  
1500DEGREES THE BETA PHASE CHANGES INTO AN ALPHA PHASE, WHICH CAN  
CONSIDERED AS THE CR OXYPYROPHOSPHATE. FACILITY: INST. OOSHCH.  
NEORG. KHIM. IM. KURNAKOVA, MOSCOW, USSR.

UNCLASSIFIED

AM

UDC 621.373:530.145.6

USSR

VOLEK, T. B., KAYTMAZOV, S. D., MEDVEDEV, A. A., POGORELSKIY, I. V.

"Obtaining Single Picosecond Pulses in a Laser with a Thin Translucent Laser"

Kratk. soobshcheniya po fiz. (Brief Reports on Physics), 1970, No 4, pp 15-19  
(from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8 D185)

Translation: This article contains descriptions of experiments in generating single picosecond pulses by a neodymium glass laser. It is demonstrated that in obtaining such pulses, wedge-shape mirrors, a container located at the Brewster angle, the pumping level close to threshold and corresponding choice of type and concentration of phototropic dye are necessary. Pulses 1 picosecond long are obtained both with thick and thin containers. Replacement of a thick container by a thin one increases the probability of obtaining pulses from 30 to 45%. Use of a reflecting container increases the stability of operation of the laser.

1/1

M

UDC 620.10

USSR

POZDEYEV, A. A. and MEDVEDEV, A. A.

"Plastic Instability of Noncompressible Hollow Cylinder Loaded with Axial Force, External and Internal Pressure"

Moscow, Izv. VUZOV, Mashinostroyeniye, No 12, pp 61-67

Abstract: The existing solution of the problem of plastic instability of thin walled cylinders loaded with internal pressure and axial force is extended to hollow cylinders. Proof is provided by the deformation theory of plasticity. From the condition of the maximum of internal pressure, a transcendental equation is produced, defining a certain parameter  $x$  in the moment of instability characterizing the ratio of diameters of the cylinder. This value of  $x$  defines the existing deformation and pressure, represented in the form of a rapidly converging series. The solution produced will be realized in practice whenever the intensity of deformation of the cylinder, at the moment of loss of stability, does not exceed  $\epsilon_p$  of the material. The opposite situation can appear only in the materials with comparatively high indices, when the stability loss deformation becomes essential. This article does not present a solution for cylinders of such materials, since the solution will be easily produced by analogy with the solution presented.

1/1

UDC 51.801

USSR

MEDVEDEV, A. A.

"A Method of Selecting Differential Semantic Attributes for the Layers of a Specific Vocabulary"

V sb. Mat. i inform. probl. prognozir. i upr. naukoy (Mathematical and Information Problems of Forecasting and Control of Science -- collection of works), Kiev, 1971, pp 310-318 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V700)

Translation: In the light of dictionary definitions, by differential semantic attributes the author understands "all those semantic attributes which distinguish a given word from other words related with respect to meaning." The classification of the selection of differential semantic attributes for the words of a specific vocabulary is given as the method.

1/1

1/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--DECAY OF LUTETIUM-169 -U-  
AUTHOR--(05)-BALALAYEV, V.A., DZHELEPOV, B.S., MEDVEDEV, A.L.,  
TERNERSESYANTS, V.YE., UCHEVATKIN, I.F.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 2-11  
DATE PUBLISHED-----70  
SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY  
TOPIC TAGS--LUTETIUM ISOTOPE, RADIOACTIVE DECAY SCHEME, CONVERSION  
ELECTRON SPECTRUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1988/0230 STEP NO--UR/0048/70/034/001/0002/0011  
CIRC ACCESSION NO--AP0105306  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16OCT70

2/2 009

CIRC ACCESSION NO--AP0105306

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE SPECTRUM OF CONVERSION E FROM PRIME169 LU WAS MEASURED OVER THE 400-900 AND 1000-500 DEV RANGES. THE LU FRACTION WAS OBTAINED BY CHROMATOGRAPHIC SEPN. FROM A TA TARGET IRRADIATED WITH 660-MEV RHO. MANY NEW TRANSITIONS WERE OBSERVED, AND OTHERS WERE REFINED, ALSO IN OTHER ENERGY RANGES. IN TOTAL, 150 TRANSITIONS WERE TABULATED WITH ENERGIES RANGING FROM 24.2 TO 2296.9 KEV TOGETHER WITH INTENSITIES OF CONVERSION K E. A COMPLETE DECAY SCHEME OF PRIME169 LU IS PRESENTED. FACILITY: VSES, NAUCH.-ISSLED. INST. METROL. IM. MENDELEEVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

*m*  
BALALAYEV, V. A., DZHELEPOV, B. S., ~~MEDVEDEV, A. I.~~, TER-NERSESYANTS, V. YE.,  
UCHEVATKIN, I. F., and SHESTOPALOVA, S. A., All-Union Scientific Research Institute  
of Metrology imeni D. I. Mendeleyev

"On Lu<sup>169</sup> Decay"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 34, No. 1, Jan 76,  
pp 2-11

Abstract: The conversion electron spectrum of Lu<sup>169</sup> was measured on the  $\pi/2$   $\beta$ -spec-  
trometer of the Institute in the energy ranges 460-900 kev and 1030-1500 kev.  
Several tens of new lines were observed. A table of transitions in Yb<sup>169</sup> occurring  
in the decay of Lu<sup>169</sup> is compiled on the basis of these measurements and the data  
of other authors and covers transition energies from 24 kev to 2300 kev. The tran-  
sition energies are given together with the mean-square error, and also the inten-  
sities of K-conversion electrons, data on the intensities of  $\gamma$ -transitions, calcu-  
lated conversion coefficients, and the multipolarity. A decay scheme for Lu<sup>169</sup> is  
given based on all the available data on Yb<sup>169</sup> levels.

1/1

1/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--ANISOTROPY OF DUCTILITY IN CONTINUOUSLY CAST SHEET STEEL -U-  
AUTHOR--(03)-OSTREYKO, I.A., MEDVEDEV, A.R., MUSTAFAYEV, I.A.  
COUNTRY OF INFO--USSR  
SOURCE--IZVEST. V.U.Z., CHERNAYA MET., 1970, (1), 72-74  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--STEEL SHEET, DUCTILITY, SHEET METAL, MANGANESE CONTAINING  
ALLOY, CONTINUOUS CASTING, ANISOTROPY, METAL ROLLING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY KEEL/FAME--2000/0553 STEP NO--UR/0148/70/000/002/0072/0074  
CIRC ACCESSION NO--AP0124248

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 026

CIRC ACCESSION NO--AP0124248

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANISOTROPY CHARACTERIZING THE DUCTILITY OF SHEET STEEL OBTAINED BY CONTINUOUS CASTING IS DISCUSSED ON THE BASIS OF A MATHEMATICAL REGRESSION ANALYSIS AND CORRELATED WITH THE MN CONTENT, THE ROLLING TEMP., AND THE METHOD OF HANDLING THE STEEL AFTER ROLLING. THE ANISOTROPY IS GREATEST WHEN THE TEMP. AT THE END OF THE ROLLING OPERATION IS 880DEGREESC AND THE RESULTANT MATERIAL IS WOUND INTO REELS AT 600DEGREESC. CAREFUL ATTENTION TO MN CONTENT IS REQUIRED IN ORDER TO ENSURE ADEQUATE DUCTILITY.

UNCLASSIFIED

Acc. Nr.:

AP0046778

Ref. Code: U80125

UNC 621.791.03.96

USSR

SKACHKO, YU. N., MOSHKIN, V. P., GARKALYUK, R. I., POPOV, N. Y., MELVEDEV,  
A. N., SKORUPSKIY, B. P., KORSHUNOV, V. A.

"High-Frequency Welding of Spiral-Seam Pipe with Butt Seam Joining"

Kiev, Avtomaticheskaya Svarka (Automatic Welding), No 1, 1970, pp 63-65  
(from Avtomaticheskaya Svarka, No 1, 1970, p 80)

Translation: This article contains a study of the characteristic features of strip formation and upsetting during high-frequency welding of spiral-seam pipe with butt seam joining. New forming schemes and new designs of the mechanical units of tube welding mills are proposed. The peculiarities of welding pipe are investigated in the case of disturbance of the geometry of the initial tape. There are 4 illustrations and a 6-entry bibliography.

1/1

Reel/Frame  
19790082

di 18

USSR

UDC 539.104.548.58

GROMOV, V. V., and MEDVEDEV, A. S.

"Kinetics of the Solution of Irradiated Uranium Oxides in Sulfuric Acid"

Leningrad, Radiokhimiya, Vol 13, No 5, 1971, pp 716-719

Abstract: During the investigation of the effect of  $\gamma$ -,  $\beta$ -, and  $n^0$ -radiation on the solution rate of  $U_3O_8$ ,  $UO_3$  and  $UO_2$  in sulfuric acid it was determined that irradiation of  $U_3O_8$  and  $UO_3$  with gamma source results in lower transition of uranium into the liquid state in the investigated dose range, namely  $10^{14}$ - $10^{23}$  ev/h.  $\gamma$ -irradiation showed practically no effect on the solubility of  $UO_2$  in  $0.1 N H_2SO_4$ . Irradiation with  $\beta$ -particles shows no effect on the behavior of the investigated oxides in  $H_2SO_4$  due to poor penetration of the  $\beta$ -particles into the crystalline lattice. Only the mixed uranium oxides were subjected to neutron irradiation; the rate of uranium transition into the liquid phase increased substantially after this irradiation. This is due to the destruction of crystalline lattice by the bombardment of neutrons. Maximum destruction of the irradiated oxide is  $1/2$

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USSR

GROMOV, V. V., and MEDVEDEV, A. S., Radiokhimiya, Vol 13, No 5, 1971, pp 716-719

observed with  $10^{17}$  neutron/cm<sup>2</sup> doses. The ratio of uranium to oxygen remains constant, however, so that the final solubility is not altered, and after about 10 days becomes identical in both cases, i.e. the solution becomes saturated.

2/2

1/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--NAVY PARADE -U-  
AUTHOR--MEDVEDEV, B. *M*  
COUNTRY OF INFO--USSR  
SOURCE--IZVESTIYA, JULY 28, 1970, P 3, COLS 5-7  
DATE PUBLISHED--28JUL70  
SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES  
TOPIC TAGS--OFFICER PERSONNEL, ARMED FORCES ORGANIZATION, DEFENSE  
MINISTRY, HOVERCRAFT, SHIPBUILDING INDUSTRY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1999/0555 STEP NO--UR/9003/70/000/000/0003/0003  
CIRC ACCESSION NO--AN0122676

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AN0122676

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE ARTICLE GIVES A BRIEF ACCOUNT OF THE NAVY DAY PARADE AT KHIMKI WATER RESERVOIR IN MOSCOW. IT WAS ATTENDED BY (1) MARSHAL A. A. GRECHKO, (2) B. YE. BUTOMA, MINISTER OF THE SHIPBUILDING INDUSTRY, (3) MARSHAL I. I. YAKUBOVSKIY, (4) GENERAL OF THE ARMY A. A. YEPISHEV, CHIEF OF THE MAIN POLITICAL ADMINISTRATION OF THE SOVIET ARMY AND NAVY, (5) GENERAL OF THE ARMY S. I. SOKOLOV, FIRST DEPUTY MINISTER OF DEFENSE, (6) ADMIRAL OF THE FLEET S. G. GORHKOV, COMMANDER IN CHIEF OF THE SOVIET NAVY, (7) GENERAL OF THE ARMY S. S. MARYAKHIN, DEPUTY MINISTER OF DEFENSE, AND (8) ADMIRAL V. M. GRISHANOV, CHIEF OF THE POLITICAL ADMINISTRATION OF THE NAVY. THE ARTICLE CONTAINS A PHOTOGRAPH OF THE SOVIET HOVERCRAFT DEMONSTRATED DURING THE PARADE.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--PHENOTHIAZINE DERIVATIVES OF 3.9 DIAZABICYCLO (3.3.1) NONAME AS  
POSSIBLE PSYCHOPHARMACOLOGICAL AGENTS -U-  
AUTHOR--(02)--MEDVEDEV, B.A., NIKITSKAYA, YE.S.

COUNTRY OF INFO--USSR

SOURCE--KHIM.-FARM. ZH. 1970, 4(2), 12-16

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHEMICAL SYNTHESIS, ORGANIC AZINE COMPOUND, HETEROCYCLIC BASE  
COMPOUND, THIOL, BENZENE DERIVATIVE, CHLORINATED ORGANIC COMPOUND,  
PSYCHOCHEMICAL AGENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1993/0595

STEP NO--UR/0450/70/004/002/0013/0016

CIRC ACCESSION NO--AP0113483

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0113483

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHENOTHIAZINE DERIVATIVES OF 3.9  
DIAZABICYCLO(3.3.1) NONANE AS POSSIBLE PSYCHOPHARMACOLOGICAL AGENTS  
PREPD. AS SHOWN ON MICROFICHE.

UNCLASSIFIED

Pharmacology and Toxicology

USSR

UDC: 615.214:547.869.2

MEDVEDEV, B.A., NIKITSKAYA, YE.S., All-Union Scientific Research Chemico Pharmaceutical Institute imeni Sergo Ordzhonikidze, Moscow, Ministry of Health USSR

"Phenothiazine Derivatives of 3,9-Diazabicyclo(3,3,1)-Nonane as Possible Psychopharmacological Agents"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 6, No 2, Feb 70, pp 13-16

Abstract: Sixteen phenothiazine derivatives of 3,9-diazabicyclo(3,3,1)-nonane were prepared, based on 3-benzyl-3,9-diazabicyclo(3,3,1)nonane. In experiments with rats it was found that neurological properties decrease when the dimethyl amine group in the amineazine molecule is replaced by 3-methyl-3,9-diazabicyclo(3,3,1)-nonane. Shortening or lengthening the propyl chain in the cyclic system also leads to a decrease in neurological activity.

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USSR

UDC 581.19

KADZHAYA, A. S., ~~MEDVEDEV, B. I.~~ MEDVEDEVA, I. F., and Associate Member of the USSR Academy of Sciences KUZIN, A. H., Institute of Biophysics, USSR Academy of Sciences, Pushchino-na-Oke

"The Chemical Nature of Biologically Active Phytolipopolysaccharides"

Moscow, Doklady Akademii Nauk SSSR, Vol 197, No 6, 21 Apr 71, pp 1,432-1,434

Abstract: A complex lipopolysaccharide has been isolated from grape membranes. Close to 0.22 g phytolipopolysaccharide (PLP) is isolated from 100 g dry grape membranes. The biological activity was tested on mice and rats after they had been irradiated with gamma-rays from a Cs-137 source in doses of 700 and 800 roentgen, respectively at a rate of 450 roentgen/min. Survival of the irradiated animals was enhanced by introduction of PLP. An attempt to separate the PLP complex led to a sharp drop in biological activity (a survival of not more than 20%). The following total contents (in %) were determined: lipids,  $54.9 \pm 1.8$ , carbohydrates,  $27.05 \pm 0.43$ ; proteins,  $8.56 \pm 0.16$ ; mineral matter,  $5.14 \pm 0.31$ ; the elementary analysis yielded: C,  $59.1 \pm 0.2$ ; H,  $9.05 \pm 0.12$ ; N,  $1.64 \pm 0.4$ ; P,  $1.43 \pm 0.05$ . The lipid component was studied by thin layer chromatography. Identification of the individual fractions was done by reference spots or using mixtures of known composition. The carbohydrate part of PLP was studied after hydrolysis in 1N HCl at  $100^{\circ}\text{C}$  for a  
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USSR

KADZHAYA, A. S., et al., Doklady Akademii Nauk SSSR, Vo 197, No 6, 21 Apr 71, pp 1,432-1,434

period of 4 hrs. The hydrolysate was extracted with chloroform. Some 2.33% of the carbohydrates went into the chloroform layer (the carbohydrates which are tightly bound by the lipids). Some 17.9% of the carbohydrate stayed in the aqueous layer, and close to 7% was lost. The hydrolysate carbohydrates were separated by paper chromatography. The individual sugars were studied using pure substances in four solvent systems. Glucose ( $4.48 \pm 0.42$ ), galactose ( $6.81 \pm 0.53$ ), and arabinose ( $5.93 \pm 0.68$ ) were identified in the hydrolysate. No hexosamines were detected. The protein components were analyzed after separation by the phenol method. Isoleucine, tyrosine, and phenylalanine were found in quantities of 0.025-0.026  $\mu$  mole per 1 mg of separated protein; lysine, histidine, arginine, proline, and methionine were present in traces; glutamic acid and valine were detected in amounts of 0.030-0.034  $\mu$  mole; leucine and alanine were present in amounts of 0.043-0.047  $\mu$  mole, and serine, asparaginic acid and glycine were present in amounts of 0.053-0.057  $\mu$  mole. A comparison of the data with known analytical data of the best studied lipopolysaccharides of bacteria shows that PLP from grape membranes has a rather complex lipid composition and a comparatively simple carbohydrate content. The protein component must be studied in more detail.

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1/2 006 UNCLASSIFIED  
TITLE--GAUGE INVARIANCE AND REGULARIZATION -U-

PROCESSING DATE--27NOV70

AUTHOR--(03)-MEDVEDEV, B.V., PAVLOV, V.P., SUKHANOV, A.O.

COUNTRY OF INFO--USSR

SOURCE--ITF 70 15 CONF 691035 7. DEP. CFSTI FROM CONFERENCE ON HIGH ENERGY  
PHYSICS AND THEORY OF ELEMENTARY PARTICLES, KIEV, USSR  
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PERTUBATION METHOD, ACCURACY STANDARD, CONVERGENT SERIES

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/1582

STEP NO--UR/0000/70/000/006/0017/0019

CIRC ACCESSION NO--AT0127078

UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0127078

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS SHOWN THAT PAULI VILLARS REGULARIZATION, IN WHICH ONE NEEDS TO PRESERVE THE GAUGE INVARIANCE AT ALL THE STAGES OF THE PERTURBATIVE CALCULATIONS, HAS THE UNUSUAL PROPERTIES. THE VALUES OF THE CONVERGENT INTEGRALS OF POSITIVE DEFINITE FUNCTIONS AS WELL AS OF DIVERGENT ONES VANISH UNDER THIS REGULARIZATION, AND THE DISCONTINUITIES ARISE IN THE REGULAR PARTS OF DIVERGENT GRAPHS. THE PHYSICAL SENSE OF PAULI VILLARS PROCEDURE AND POSSIBILITY OF VANISHING OF DIVERGENT PARTS OF ALL THE GRAPHS ARE DISCUSSED.  
FACILITY: AKADEMIYA NAUK UKRAINSKOI SSR, KIEV. INSTITUT TEORETICHESKOI FIZIKI.

UNCLASSIFIED

1/2 040 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--RECONSTRUCTION OF THREE DIMENSIONAL IMAGES USING COHERENT LIGHT -U-

AUTHOR--(05)--SHMAKOV, P.V., ZHEBEL, B.G., KOPYLOV, P.N., MEDVEDEV, E.V.,  
TACHKOV, A.N.  
COUNTRY OF INFO--USSR

SOURCE--ELEKTROSVIAZ', VOL. 24, FEB. 1970, P. 5-10

DATE PUBLISHED-----70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--HOLOGRAM, COHERENT LIGHT, TV NETWORK, BANDWIDTH COMPRESSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/1804

STEP NO--UR/0106/70/024/000/0005/0010

CIRC ACCESSION NO--AP0118771

UNCLASSIFIED

2/2 040  
CIRC ACCESSION NO--AP0118771  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT. INVESTIGATION OF DIFFERENT METHODS FOR REDUCING THE VOLUME OF HOLOGRAPHIC INFORMATION TO FACILITATE TRANSMISSION OVER STANDARD TELEVISION CHANNELS. FOR AN IDENTICAL RATE OF TRANSMISSION OF A SINGLE FRAME, THE BANDWIDTH OF THE HOLOGRAPHIC SYSTEM SHOULD BE FOUR TO SEVEN TIMES WIDER THAN A STANDARD TELEVISION CHANNEL. IT IS POSSIBLE TO REDUCE THE VOLUME OF HOLOGRAPHIC INFORMATION BY (1) RECORDING HOLOGRAMS WITH LOW SPATIAL FREQUENCIES, (2) REDUCING THE BANDWIDTH OF THE SPATIAL FREQUENCIES WITH THE AID OF A SCATTERING MEDIUM PLACED IN THE SYSTEM, AND (3) LIMITING THE DIMENSIONS OF THE ANALYZED HOLOGRAPHIC SEGMENT. IT IS SHOWN THAT THE BEST WAY OF REDUCING THE INFORMATION IS BY REMOVING VERTICAL PARALLAX AND BY CONSERVING A LIMITED NUMBER OF ASPECTS IN THE HORIZONTAL DIRECTION. A METHOD IS DESCRIBED FOR TRANSMITTING A SEQUENCE OF IMAGES FOCUSED IN ORDINARY LIGHT, WITH SUBSEQUENT FORMATION OF A HOLOGRAM AT THE RECEIVING END.

UNCLASSIFIED

Recorders and Transducers

USSR

UDC 621.385:539.145.6:77

M  
MEDVEDEV, E. V.

"Analysis of the Possibilities of a Lens-Raster Screen in Systems with a Limited Amount of Holographic Information"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. Vyp. 3 (Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute. Vyp. 3 (Leningrad, 1970, pp 45-50 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8 D371)

Translation: This article contains a description of the operation of a lens-raster screen as a phase diffuser for encoding holographic information. The conditions of implementation of the holographic schematic and the basic characteristics of a multilens diffuser are defined.

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USSR

UDC 621.397-2 /

M  
SHMAKOV, P. V., ZHEBEL', B. G., KOPYLOV, P. M., ~~MEDVEDEV~~, E. V., TACHKOV, A. N.

"Reproduction of Three-Dimensional by the Use of Coherent Light"

Moscow, Elektrosvyaz' (Electrical Communications), No 2, Feb 70, pp 5-10

Abstract: The authors conclude that: 1) In broadcast holographic television systems a decrease of the information transmitted is possible because of the elimination of vertical parallax and preservation of a limited number of fore-shortenings in the horizontal direction; 2) The method of transmission of a series of images focused in normal light and the forming of them at the receiving end of the holograph, making it possible to perceive depth and to examine the image of three-dimensional objects, is undoubtedly of great interest and merits careful and thorough investigation; and 3) Progress in analysis, transmission, and reproduction of complete holographic information is obviously possible only by using scanning and modulated laser beams. The image of a cannon and a bell photographed with a magnified holograph is shown as it looked before and after transmission on the Moscow--Minsk facsimile channel. The arrangement of the system is shown in several drawings. 5 Fig. 21 ref. Submitted 19 May 69.

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USSR.

KOPYLOV, P., MEDVEDEV, E., and TACHKOV, A.

"Holography and Television"

Moscow, Radio, No 5, May 1970, pp 15-24

Abstract: The authors review the development and explain the basic principles underlying holography. They point to the advantages inherent in hologram as to brightness of transmission which is not possible with focused images either with standard photography or television. The use of holographic methods in television is proposed and the various existing drawbacks enumerated. If the dimensions of holograms can be decreased, then there exists a real possibility of utilizing existing television systems for the transmission of holograms. A practical method for doing this is illustrated where the hologram is broken down into individual, elementary rectangles. These are magnified by lenses until the structure of the transformed hologram is coarse enough to be read by the electron beam of a television camera tube. The hologram may be transmitted through a channel with the aid of a "scanning beam" type television pickup. The raster of the scanning electron beam is projected onto the hologram. This is done with the aid of an optical system forming a microraster on the hologram. The video signal formed on the load of the photoelectron multiplier is amplified and corrected by a preamplifier and a videoamplifier. The section of the hologram transmitted through the channel then appears on the picture tube.

1/2

USSR

KOPYLOV, P., MEDVEDEV, E., and TACHKOV, A., Moscow, Radio, No 5, May 1970, pp 15-24

Practical examples of hologram transmission are given; however something was lost in each instance. Despite this, the authors express confidence that these shortcomings will be overcome.

USSR

UDC 621.791

KONOVALOV, YE. G., Member of the Academy of Sciences BSSR,  
KONOVALOV, G. YE., ~~MEDEV~~ MEDVEDEV, E. M., Minsk Radio-Engineering Institute

"The Effect of Sonic and Ultrasonic Vibrations on Semiconducting Resistors"

Minsk, Doklady Akademii Nauk BSSR, Vol 14, No 2, 1970, pp 125-127

Abstract: The effect of vibrations on semiconducting thermistors of the MMT-1 and MMT-2 type has been investigated. The thermistors were tested on a specially designed testing unit which could simulate sinusoidal vibrations with a frequency of 3,500 and 23,500 Hz and amplitude of 9%. The tests were carried out at 25 and 15°C to determine the effect of initial temperature of thermistors on the magnitude and nature of the investigated effect. The results were plotted on a series of graphs shown in the article. Analysis of the graphs shows that the resistance deviation of the thermistors increases with increasing frequency, amplitude, and duration of vibrations. The effect is more pronounced in the case of a lower initial amplitude. The process of resistance recovery in the latter case is of a

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USSR

KONOVALOV, YE. G., et al, Doklady Akademii Nauk BSSR, Vol 14, No 2, 1970, pp 125-127

nonlinear character, and the duration of recovery is significantly shortened. It can be concluded, on the basis of this investigation, that the possibility of such effects should be taken into consideration in the design of similar instruments and proper measures should be taken for their prevention.

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USSR

UDC: 519.24

MEDVEDEV, G. A., RYZHAKOV, A. P.

"On the Use of Algorithms of Random Search in Systems of Automatic Optimization"

V sb. Zadachi statist. optimizatsii (Problems of Statistical Optimization --collection of works), Riga, "Zinatne", 1971, pp 81-92 (from SZh-Kiber-netika, No 12, Dec 71, Abstract No 12V403)

Translation: It is shown that step-by-step random search algorithms -- search with scaling, search with linear scaling, improved search with punishment by randomness -- are not suitable for tracking the extremum value of a function of the quality of an object, and therefore cannot be used in automated optimization systems. A comparative study is made of the effectiveness of two-step random search algorithms (search with return and search with punishment by randomness and three deterministic algorithms). Authors' abstract.

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USSR

UDC: 519.24

LIMOVA, L. K., MEDVEDEV, G. A.

"On Some Properties of Sequential Statistical Analysis"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Affiliated With Tomsk University), 1970, vyp. 51, pp 135-142 (from RZh-Kibernetika, No 7, Jul 71, Abstract No TV309)

Translation: Attention is called to the fact that in Wald's well known sequential analysis, the comparison thresholds are independent of the number of the test, which makes the actual effectiveness of the tests higher, but requires a longer testing time than is required for obtaining the planned effectiveness. A somewhat modified procedure is proposed in which the comparison thresholds change from test to test. It is shown on the basis of examples that in this case the time of analysis is somewhat shortened as compared with Wald's case in obtaining the planned effectiveness. Authors' resumé.

1/1

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USSR

UDC 533.6.011.6

IVANOV, V. V., DUNIN, I. L., and MEDVEDEV, G. G., (Novosibirsk)

"Boundary Layer of a Transparent Gas on a Radiating Surface"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, Jan-Feb 72, pp 107-110

Abstract: The process of heat transfer in a laminar, boundary layer of a transparent gas flow over a flat plate with a given heat flux on its surface is investigated. In this case the effect of radiation on convection appears only through boundary conditions. A system of differential equations of motion for a boundary layer is written and solved by an analytical method of solution for transfer problems developed by one of the authors and generalized for determining heat transfer in boundary layer. A comparison of the results obtained with available data, shows a good agreement. It is stated in the conclusion that the method presented here can be used for the solution of the nonlinear problem of heat transfer, when the energy equation of a system of boundary layer equations contains dissipative terms.

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USSR

UDC 621.357.7:669.68(088.8)

KUDRYAVTSEV, N. T., KRUGLIKOV, S. S., NECHAYEV, YE. A., MEDVEDEV, G. I., IZMAYLOVA, T. M.

"Method of Electrodeposition of Tin"

USSR Author's Certificate No 316750, filed 11 Dec 70, published 9 Dec 71 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L326F)

Translation: A procedure has been patented for electrodeposition of Sn. The procedure is distinguished by the fact that in order to obtain bright smooth deposits of Sn, 1,4-butenediol is introduced into the electrolyte, and the process takes place at 18-25°, D<sub>c</sub> 1-5 amps/dm<sup>2</sup> and with mixing of the electrolyte. The electrolyte contains 25-60 grams/liter of SnSO<sub>4</sub>, 80-100 grams/liter of H<sub>2</sub>SO<sub>4</sub>, 10-15 grams/liter of orthocresol, 3-80 mℓ/liter of 40% 1,4-butenediol, and 1-2 grams/liter of joiner's glue. Example. In an electrolyte containing 50 grams/liter of SnSO<sub>4</sub>, 90 grams/liter of H<sub>2</sub>SO<sub>4</sub>, 10 grams/liter of orthocresol, 30 mℓ/liter of 40% 1,4-butenediol and 1 gram/liter of joiner's glue, the process takes place with agitation at a temperature of 18-25° and D<sub>c</sub> 1-5 amps/dm<sup>2</sup>. The films obtained have a mirror finish with a high degree of smoothness, 1.0-1.1.

1/1

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Entomology

UDC 595.767 (575.172)

USSR

MEDVEDEV, G. S., and PIRNAZAROV, B. P., Institute of Zoology, Academy of Sciences USSR, Leningrad, and Combined Institute of Natural Sciences, Karakalpak Branch of the Academy of Sciences Uzbek SSR, Nukus

"A New Species of Beetle of the Genus *Leptodes* Sol. (Coleoptera, Tenebrionidae) from the Coast of the Aral Sea"

Leningrad, Entomologicheskoye Obozreniye, Vol 51, No 1, 1972, pp 125-126

Abstract: A new species of beetle of the genus *Leptodes* Sol., *Leptodes* (*Leptodopsis*) *reimovi* G. Medvedev et Pirnazarov, sp. n., was discovered on the western coast of the Aral Sea at an eastern chink of the Ustyurt. The new species has some traits common with those of *L. suworowi* Rtt., but shows characteristics which distinguish it in a pronounced manner from the latter species. The discovery of a species of the subgenus *Leptodopsis* Haag-R. on the eastern reaches of the Ustyurt is of interest, because the closest areas in which species of this subgenus have been previously found are at Karatau near the Syr-Dar'ya and at the western spurs of the Gissar Ridge. One may assume that at some time in the past more favorable conditions existed for the spread of mountain species to Ustyurt across the intervening area, which is now a desert.

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USSR

UDC 669.71.051.24

LAPPO, S. I., MEDVEDEV, G. V., and TAKENOV, T. D.

"Investigation of the Possibility Using Bauxites From Arkalyk (Turgay Ore Administration) and YuUBR (South Ural Bauxite Mine) Deposits for the Extraction of High-Alumina Intermediate"

Tr. Khim.-metallurg. in-ta. AN KazSSR (Works of Chemicometallurgical Institute of Academy of Sciences Kazakh SSR), 1970, 14, pp 107-116 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3 G144 by authors)

Translation: The article presents results of a thermodynamic analysis of the possible chemical reactions during the production of high-alumina intermediate in order to obtain lime-alumina slag for steel refining. Thermographic analyses determine the temperature conditions for dehydration of bauxites from Arkalyk (Turgay Ore Administration) and South Ural Bauxite Mine deposits. The apparent and true specific gravities, fractional composition, bulk weight, porosity, and drum samples of the above-indicated bauxites are determined. High-alumina intermediate is obtained  
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USSR

LAPPO, S. I., et al., Tr. Khim.-metallurg. in-ta. AN KazSSR ,  
1970, 14, pp 107-116 (from RZh-Metallurgiya, No 3, Mar 71,  
Abstract No 3 G144 by authors)

from lump bauxite of Turgay Ore Administration by ore thermal  
melting in an 80-kilovolt-ampere two-electrode single-phase  
tilting electric furnace. It is advisable to carry on the melt-  
ing process in the electric furnace without addition of lime  
to the charge. The resultant intermediate is standard with regard  
of all indicators except FeO and S content. Results of theoret-  
ical investigations and study of the physical properties of  
bauxites and large-scale laboratory melts permit recommendation  
of the process of producing high-alumina intermediate from the  
raw material under study. Four tables. Bibliography with 16  
titles.

USSR

M UDC: 536.4:621.791.65

DERKACHE, V.P., KORSUNSKIY, V.M., and MEDVEDEV, I.V.

"The Kinetics of Thermal Processes Involved in Electron-Beam Alloying of Silicon"  
Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 70, pp 14-24

Abstract: The problem of computing temperature fields in semiconductors during electron-beam alloying is formulated. Thermal conductivity is handled on an approximation basis (assuming a Gaussian distribution of energy over radius and depth, an independence of thermal and physical parameters from temperature, the conductor as a semi-infinite body with an adiabatic boundary, etc. Formulas are derived to correspond to single and double electron-beam pulses or series of pulses, and to steady-state and transitional temperature fields during "constant" alloying. The control of thermal processes by regulating the energy and time parameters of the beam is illustrated by calculations.

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UDC 613.34

USSR

POGOSOV, D. P., OMEL'YANETS, N. I., Candidate of Medical Sciences, Grigor'yeva, L. V. Doctor of Medical Sciences, MEDVEDEV, I. N., Candidate of Medical Sciences, MIRONETS, N. V., Kiev Institute of Public and Communal Hygiene Imeni A. N. Marzeyev

"Hygienic Evaluation of Materials for Decontamination and Enrichment of Demineralized Water with Salt"

Moscow, Gigiyena i Sanitariya, No 8, 1972, pp 19-22

Abstract: Results are presented from a hygienic evaluation of AV - 7 x 8ch S anion-exchange resin in bicarbonate form and the contact granulated M-16 mineralizer for enrichment of desalinated water with salt and the asbestos-silver sterilizer for decontamination of desalinated water. The use of water which has been enriched with salt and decontaminated by the mentioned materials for drinking purposes is acceptable for a period of no more than 30 days. The procedures for applying the indicated materials for the mentioned purposes and testing the water obtained are described. The results of the sanitary-chemical, sanitary-bacteriological and sanitary-toxicological studies provide a basis for recommending AV-17-8chS anion-exchange resin (in bicarbonate form) and the M-16 granulated contact mineralizer as reagents for enriching water with salt for short-term utilization of it for drinking purposes. In connection

USSR

POGOSOV, D. P, et al., Gigiyena i Sanitariya, No 8, 1972, pp 19-22

with absence in the mineralizer of fluorine compounds, the water cannot be used for drinking purposes over a prolonged period of time. The investigated asbestos-silver sterilizer is in need of further improvement in that its present output of silver ions is low and unstable. White rats were used to study the physiological effects of drinking the treated water.

2/2

Reliability

USSR

UDC 621.396.6.019.3

BARVINSKIY, L. L., DEM'YANCHUK, V. S., MEDVEDEV, K. I.

"Availability of Certain Repairable and Maintainable Redundant Systems"

Sb. nauch. tr. Kiev. in-t inzh. grazhd. aviatsii (Collected Scientific Works of Kiev Institute of Civil Aviation Engineering), 1970, vyp. 3, pp 25-29  
(from RZh-Radiotekhnika, No 5, May 72, Abstract No 5V292)

Translation: Expressions were obtained for evaluating the idle time factor of a complex comprising redundant subsystems and subjected to repair and preventive maintenance. It is proposed that all modules of the system are equally reliable and that their repair time is distributed by an exponential law. The repair time for a failed module and the switching time to a reserve unit in a state of good repair are distributed by a power law. The time to ready the redundant unit for operation is taken into account. There is 1 illustration and a 1-entry bibliography.

1/1

USSR

UDC 533.6.011

AVDUYEVSKIY, V. S., GRETSOV, V. K., and MEDVEDEV, K. I., (Moscow)

"Stability of Flows with Forward Separation Regions"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, Jan-Feb 72, pp 74-81

Abstract: The instability phenomenon of the two-dimensional and axisymmetrical separation regions, originating at the leading edge of a semi-infinite plate with a flat step, and at the cone apex with an axisymmetrical step (with a shield) is investigated. It is assumed that separation region instability means a periodical strong expansion, a complete disappearance and a new formation of separation region. Pulsations of a two-dimensional separation region were observed during study of a laminar and turbulent flow conditions in a boundary layer in front of a step in the Mach range from  $M=2,9$  to 6. A stability criterium of two-dimensional and axisymmetrical flow with a forward separation region was established on the basis of experimental results. The results of tests with a transition from a two-dimensional to three-dimensional separation region show that pulsations cease when a side outflow of gas from separation region becomes significant.

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Acc. Nr.: AP0041189

Ref. Code: UR 8/87

USSR

UDC: None

MEDVEDEV, L., Colonel, and FOMIN, L., Engineer-Colonel

"Radar Station P-10"

Moscow, Radio, No. 1, 70, pp 14-16

Abstract: A discussion on a fairly simple level, of the radar station P-10 designed to detect flying objects. The detection range of the station for targets at an altitude of 10 km is 200 km, with the detection range varying in general with target altitude. The station operates in the pulse mode, and its detection zone ceiling is not less than 16,000 meters. A full circular view of the surrounding air space is provided, with a velocity of Trpm 0.5 to 2 or 3.5 revolutions per minute. The station is protected from noise; specifications concerning errors in coordinate determination and resolving power are given. Operation is in the meter

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Reel/Frame  
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AP0041189

wavelength range and the station can be pretuned to several fixed operating frequencies. The antenna has a broad directional diagram of 22° maximum in the horizontal plane. The voltage supply is three-phased at 220-230 volts, 50 Hz, with 6.25 kw consumed. The entire equipment of the station is carried in two trucks of the ZIL-151 type. One van contains the radar equipment; the other the power supply and distribution switchboard. The first illustration of the article shows the antenna array as mounted on the truck containing the radar equipment, and the second gives the front-panel layout of the various radar components mounted on the racks contained in the first truck. The concluding paragraph promises further details on the radar equipment's operation, particularly the principles on which the coordinates of the target are obtained and the design work on the station, to appear in a forthcoming issue of Radio.

2/2

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19750985

USSR

UDC: None

MEDVEDEV, L., Col., FOMIN, L., Eng.-Col.  
"Radar Station P-10"

Moscow, Radio, 2 February 1970, pp 18

Abstract: The last of a series of articles begun in Radio, No 1, 1970. The preceding article discussed the construction, functional blocks, and operation of the radar station of the title; this installment considers three questions: the station's power supply, the principle of actual target coordinate determination, and the computation operation of the station. The independent power supply for the station is obtained from two power supply assemblies of the ALD-10/A type, a photograph of which is provided. The assembly consists of a motor, a generator, control circuitry, fuel tank, radiator, and mounting frame. The motor is a two-cylinder, four-cycle internal heating type with the number 5P2-2Ch-8.5/II, operating with an SGS-6.25 three-phase synchronous generator, 230 volts, a-c. The station can also be supplied from an external three-phase a-c circuit of 220 volts, or from

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USSR

MEDVEDEV, L., Radio, 2 February 1970, pp 18

Abstract: a 380-volt circuit through a transformer. The station locates its targets as do other pulse radars, the PPI and altitude indicator show altitude and a circular view of the surrounding area. The station can be put into the coherent pulse mode in which the target video pulses are distinguished from noise. There is also an IFF system. A description is given of the responsibilities devolving on the two operators of the system and how they are discharged.

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5

USSR

UDC 621.9.01.669.018.25

REZNIKOV, N. I., BURMISTROV, Ye. V., ZHARKOV, I. G., ZYKIN, A. S., KRAVCHENKO, B. A., LENILIN, V. I., MEDVEDEV, L. P., MITRYAYEV, K. F., URYVSKIY, F. P.

"Cutting of Heat-Resistant, High-Strength Titanium Alloys"

Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov [English Version Above], Moscow, Mashinostroyeniye Press, 1972, 198 pages.

Translation of Foreword: The Twenty-Fourth CPSU Congress defined the main trends in further development of the socialist economy and indicated the necessity of comprehensive acceleration of scientific and technical progress.

One primary trend in the development of the economy is increasing the effectiveness of production. This means that under today's conditions, ever greater significance is being given to increasing the output of products, improving their quality and technical and economic indicators.

Over the past years, the tool industry has solved important problems related to the creation of new tool designs, the development of the production and improvement of tools, as well as mass production of tools of ever stronger high-speed steels. Broad utilization of automated machine tools, continuous and automatic production lines in large-series and mass production requires an increase in the output of cutting tools of long life and

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UDC 621.9.01.669.018.25

USSR

REZNIKOV, N. I., BURMISTROV, Ye. V., et. al., Obrabotka Rezaniiem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniye Press, 1972, 198 pages.

high accuracy, capable of operating under severe cutting conditions for long periods of time without replacement. Tool life can be increased if the tool industry is provided with high quality steels and alloys. Soviet scientists have created alloys with high strength characteristics and high heat resistance. The workability of alloys and steels can be improved by the use of various methods based on ultrasonics, electric contact and induction heating, application of small electric currents to the cutting zone, etc. These methods allow the life of a cutting tool to be increased by 2 to 5 times, increasing the cutting speed and productivity of processing. Part quality can be improved by using tools of natural and synthetic diamonds, as well as elbor.

The present work familiarizes the reader with research conducted into the physics of the cutting process, materials for cutting tools, optimal cutting modes and methods of improving the quality and workability of parts.

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UDC 621.9.01.669.018.25

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USSR

UDC 621.9.01.669.018.25

REZNIKOV, N. I., BURMISTROV, Ye. V., et. al., Obrabotka Razaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniye Press, 1972, 198 pages.

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USSR

UDC 621.9.01.660.018.25

REZNIKOV, N. I., BURMISTROV, Ye. V., et al., Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniya Press, 1972, 198 pages.

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USSR

UDC 621.9.01.660.018.25

REZNIKOV, N. I., BURMISTROV, Ye. V., et al., Obrabotka Rezaniiem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniya Press, 1972, 198 pages.

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1/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70  
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AUTHOR-(OS)-OCLUTVINA, I.G., ZHILTSOVA, L.YA., MATVEYEVA, YE.N., MEDVEDEV,  
M.N., RUBINA, O.G.  
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CIRC ACCESSION NO--AP0128572

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF 10 YR LONG  
EXPOSURE TO LIGHT OF POLYSTYRENE; LEASED 2PERCENT P, TERPHENYL, FILLED  
SCINTILLATORS WAS INVESTIGATED THE QUANTUM YIELD OF LUMINESCENCE WAS  
REDUCED BY 50PERCENT IN THE SURFACE LAYERS OF THE SPECIMENS. NO EFFECT  
ON THE LUMINESCENCE LIFETIMES WAS FOUND. FACILITVE DB'EDIN.  
INST. YAD. ISSLED., DUBNA, USSR.

UNCLASSIFIED

USSR

UDC 536.46:533.6

MEDVEDEV, N. A., MIKHEYEV, M. P.

"On the Effect of an Electric Field on Flame Propagation in a Tube"

V sb. Fiz. vibrats. goreniya i metody yeye issled. Vyp. 1 (Physics of Vibration Combustion and Methods for Studying It. No. 1 -- Collection of Works), Cheboksary, 1971, pp 79-86 (from RZh-Mekhanika, No 6, Jun 72, Abstract No 6B900)

Translation: An experimental study of the effect of a transverse electric field on the initial stage of flame propagation in a vertical tube filled with a propane-air mixture and the effectiveness of the action of the field on the vibration mode of combustion upon the application of the field to different segments of the tube is described. The experiments were conducted in a tube of rectangular cross section  $12.5 \times 28.5$  mm and 1050 mm long. The mixture was ignited at the lower open end of the tube. The electric field was produced between the electrodes 126 mm long fastened to the outer walls of the tube. Shadow and interference pictures of the propagation of the flame front were obtained at the initial stage of the development of the combustion process and oscillograms of the pressure change in the tube were also obtained.

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USSR

MEDVEDEV, N. A., MIKHEYEV, M. P., Fiz. vibrats. goreniya i metody yeye  
issled. Vyp. 1, Cheboksary, 1971, pp 79-86

It was shown that the rate of flame propagation in the initial stage of the development of the combustion process increases under the effect of the transverse electric field. The field has the greatest effect on vibration combustion when it is applied close to the open end of the tube. The amplitude of the acoustical oscillations in this case rises with an increase in the field strength. G. D. Salamandra.

2/2

UDC 621.374.4

USSR

YESHCHIN, K.K., MEDVEDEV, N.F., SOROKIN, A.G.

"Pulse Shaper"

USSR Author's Certificate No 305571, filed 24 Nov 69, published 25 July 71  
(from RZh:Radiotekhnika, No 2, Feb 72, Abstract No 2G247P)

Translation: A pulse shaper is proposed which contains a current switch, one arm of which is made in the form of several transistors connected in parallel with one common emitter load, and a multiple switch. In order to expand the range of measurement of the off-duty factor in the multitransistor arm of the current switch, the bases of the following transistors are connected across inverter transformers to the collector of the preceding transistors and directly to the contacts of the multiple switch. The secondary windings of the transformers and the sliding contact of the multiple switch are connected to a busbar with a constant potential.

1/1

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UDC: 681.327.02

USSR

YESHCHIN, K. K., KRASYUK, B. A., MEDVEDEV, N. F., MESKIN, S. S., RAVICH, V. H.,  
SOROKIN, A. G.

"A Memory Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 28,  
1970, Soviet Patent No 280543, Class 21, filed 11 Jan 69, p 40

Abstract: This Author's Certificate introduces a memory device which contains a diode matrix connected to control keys and to a discharge readout amplifier. As a distinguishing feature of the patent, the signal-to-noise ratio is improved by connecting a diode light source and optically coupled photo receiver to each group of diodes in the matrix. The photo receivers are united and connected to the input of the readout amplifier.

1/1

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USSR

UDC 621.382.621.385.6 (088.8)

YESHCHIK, K.K., IGNATKINA, R.S., MEDVEDEV, N.F., MESKIN, S.S., RAVICH, V.N.

"Optical Indicator"

USSR Author's Certificate No 258458, filed 26 May 67, published 27 Apr 70 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11s252F)

Translation: A device is proposed for visual control of voltage. The device is a semiconductor optical indicator, one of the areas of which has at least two ohmic contacts and a fixed resistance per unit length along the p-n junction, and the second accomplished so that the resistance between its contacts and any point of the operating zone decreases, for example along a parabola. Because of this a reduction is achieved of the consumable power, as well as an increase of the degree of contrast of the boundary of the luminous area, which considerably expands the range of application of such devices. 2 ill. G.8h.

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USSR

UDC: 539.3:534.1

VOROB'YEV, Yu. S., MEDVEDEV, N. G., Khar'kov

"Design of Turbine Machine Blades for Forced Oscillations with Various Types of Excitation"

Kiev, Problemy Prochnosti, No 11, Nov 72, pp 15-19.

Abstract: The problem of forced oscillations of the working blades of turbine machines is solved by a variation method based on the refined theory of oscillations of twisted rods considering the influence of internal inelastic resistance and aerodynamic damping. Forms of oscillations are determined, as well as the distribution of internal forces, moments and stresses over the length of the blade under the influence of loads with arbitrary rule of change with time and over the length of the blade.

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USSR

UDC 621.374

PLEKHANOV, S. P., FINOGENOV, B. S., MEDVEDEV, N. N., PLEKHANOV, L. P.

"A Square Pulse Shaper Based on Integrated Circuitry"

Moscow, Otkryitya, izobreteinya, promyshlennyye obraztsy, tovarnyye znaki,  
No 2, Jan 71, Author's Certificate No 290435, division H, filed 21 Aug 67,  
published 22 Dec 70, p 157

Translation: This Author's Certificate introduces a square pulse shaper based on integrated circuits which are made up of individual cells in the form of crystals containing two transistors with common collector. As a distinguishing feature of the patent, the device is designed to shape pulses with a greater duration than that of pulses produced when the cells are connected in series. The shaper is made as a minimum on four cells, the input signal being sent simultaneously to the supply lead of the third cell and to one of the inputs of the first cell. The output of the first cell is connected to one of the inputs of the second cell. The collectors of the transistors in the second cell are connected directly to the supply source, and the emitters are connected to one of the inputs of the third cell, the output of this cell being connected simultaneously to the two inputs of the fourth cell.

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USSR

UDC: 51:530.115

VASILEVSKIY, P. L., MEDVEDEV, P. A.

"The Problem of Determining the Optimum Parametric Series of Excavators"

V sb. Modelir. ekon. protsessov (Modeling Economic Processes--collection of works), Moscow, Moscow University, 1971, pp 515-533 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V771)

Translation: The authors consider a set of jobs characterized by intensity and concentration, i. e. by a quantity of soil which must be excavated between construction operations. There is a series of standard-size machines characterized by intensity, operational expenditures per cubic meter of soil, retooling time, retooling cost, and the function of expenditures  $\phi(x)$  for putting out a line of length  $x$ ,  $\phi(x)$  are monotonic concave. An algorithm is given for solving the problem of minimizing all expenditures for carrying out predetermined jobs. D. Epshteyn.

1/1

Hematology

USSR

UDC 591.044.3:615.387-012

MSIVEDEV, P. M., and FISANOVICH, T. I., Laboratory of Organ and Tissue Conservation and Transplantation, Leningrad Institute of Hematology and Blood Transfusion

"Traumatization of Blood and Bone Marrow Cells During Deep Freezing"

Leningrad, Tsitologiya, Vol 15, No 2, 1973, pp 129-143

Abstract: A comprehensive literature review is given, and data from various sources are compared. During deep (down to  $-78^{\circ}\text{C}$ ) and superdeep ( $-196$  to  $-296^{\circ}\text{C}$ ) freezing, tissue trauma is caused not just by the mechanical factor of formation of ice crystals and the ensuing dehydration. Shifts occur in the distribution of electrolytes, causing irregular changes in the osmotic pressure. Furthermore, profound alterations take place in the spatial relationship between water molecules and the macromolecules of biopolymers, the orientation of hydrophobic and hydrophilic surfaces is disarrayed, and the crystal lattices of water surrounding the macromolecules are rearranged. These changes in the mutual relations between subcellular structures ultimately disturb not only physical processes, such as diffusion of particles, but also enzymatic processes. It is believed that all the physico-chemical factors involved in deepfreezing and defrosting can be elucidated and eventually brought under control.

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USSR

UDC 534.222.2

MEDVEDEV, S. A.

"The Origination of a Plane Detonation Wave During Explosive Disintegration in an Inflammable Gas"

Nauch. Tr. In-t Mekh. Mosk. Un-ta (Scientific Works of the Institute of Mechanics, Moscow University), No 11, 1971, pp 72-82 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 28235 by Yu. N. Denisov)

Translation: The problem of the origination of a detonation wave in an inflammable medium with a finite reaction rate in the presence of an instantaneous energy release in a restricted or semirestricted volume of reacting gas is solved by the numerical finite-difference method. An analysis of the process of origination of the detonation during dissipation of the burst in an inflammable gas, conducted with disregard of the influence of the transfer parameters, permitted the solution of the initial equations to be obtained in the form of relationships of the Mach-number values of the initial shock wave and the Mach-number values in the Chapman-Jouget regimes to the reduced calorific value of the inflammable gas. As a result of numerical solution, velocity profiles and profiles of other parameters were obtained for various moments of time of formation of the detonation wave. Ten references.

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Semiconductor Technology

UDC 621.315.592

USSR

MEDVEDEV, S. A.

"Introduction of Semiconducting Materials Into Technology. A Textbook for Students of Higher Educational Institutions Studying Semiconductors and Dielectrics"

Vvedeniye v tekhnologiyu poluprovodnikovykh materialov. Uchebn. posobiye dlya stud. vyssh. uchebn. zavedeniy po spets. "Poluprovodn. i dielektriki" (cf. English above), Moscow, "Vyssh. Shkola", 1970, 503 pp, ill., 1 r. 16 k (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11G366 K)

Translation: A short review is presented of the concepts of crystallography and physical chemistry. The elements of the theory of nucleation and growth of crystals, methods of growing single crystals, and the problem of epitaxial films are considered. A description is given of the technology of preparation and the properties of the best known semiconductors: Ge, Si, SiC, and others.  
(From RZh A i K)

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USSR

UDC: 621.318.1(088.8)

MEDVEDEV, S. A., KOLCHIN, V. V., BALBASHOV, A. M., CHEPARIN, V. P., Moscow  
Power Engineering Institute

"A Hexaferrite"

USSR Author's Certificate No 281710, filed 3 Jun 68, published 10 Dec 70  
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V465 F)

Translation: This Author's Certificate introduces a hexaferrite which contains iron oxide, strontium oxide and chromium oxide. As a distinguishing feature of the patent, the field of anisotropy is increased to values of 33-40.3 thousand oersteds with a ferromagnetic resonance width of 1.8-2.2 thousand oersteds or less by taking the initial components in the following proportions (in percent by weight): strontium oxide 9.8%-9.95, chromium oxide 23.2-32, and the remainder iron oxide.

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1/2 048

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--UNSTEADY ONE DIMENSIONAL MOTIONS OF INFLAMMABLE GAS MIXTURES WITH  
THE FORMATION OF DETONATION TYPE WAVES -U-  
AUTHOR--(04)-KUKUBEYNIKOV, V., LEVIN, A., MEDVEDEV, S.A., CHERNYI, G.G.

COUNTRY OF INFO--USSR

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PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123394  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THEORETICAL STUDY OF A GROUP OF PROBLEMS CONCERNING THE UNSTEADY ONE DIMENSIONAL MOTION OF REACTING GAS MIXTURES IN THE PRESENCE OF DETONATION WAVES. IT IS SHOWN THAT SUPERCOMPRESSED DETONATION WAVES, SUCH AS THOSE PRODUCED BY THE MOTION OF A PISTON OR DUE TO THE INFLUX OF EXTERNAL ENERGY, ARE TRANSFORMED INTO CHAPMAN-JOUQUET SELF SUSTAINING WAVES WHEN THE HEAT DISCHARGE ZONE IS INFINITELY THIN. A CONDITION IS FOUND UNDER WHICH A PLANE DETONATION WAVE FRONT WEAKENED BY A TRAILING REREFRACTION WAVE CAN BE TRANSFORMED INTO A CHAPMAN-JOUQUET WAVE BY AN ELECTROMAGNETIC FIELD AT SMALL MAGNETIC REYNOLDS NUMBERS. A MATHEMATICAL CRITERION FOR THE ASYMPTOTIC CONVERSION OF A DETONATION WAVE WITH A DOUBLE FRONT STRUCTURE INTO A CHAPMAN JOUQUET WAVE IS DISCUSSED.

UNCLASSIFIED

MEDVEDEV, S. A.

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V-35, GAS ETCHING OF CALCIUM ARSENIDE BY HYDROGEN CHLORIDE WITH THE ADDITION OF CaCl<sub>2</sub> TO THE GAS PHASE

Article by G. A. Alexandrova, S. A. Medvedev, I. N. Serebrennikov, Horoditskii, I. I. (Moscow, 12-11 June, 1977, p. 511)

The possibility of realizing the polishing mode of gas etching of gallium arsenide plates by hydrogen chloride was demonstrated experimentally in a flow system on introduction of CaCl<sub>2</sub> into the etching gas mixture. The analysis of the experimental results shows that under the conditions of diffusion control of the process rate, polishing etching takes place in those cases where an arsenic atom accumulates on the etching surface, that is, the Ga/As ratio in the gas phase is close to one.

MEDVEDEV, S. A.

S. A. MEDVEDEV  
6.73

3

4-3. CONDITIONS OF POLISHING GAS ETCHING OF GALLIUM ARSENIDE BY HYDROGEN HALIDES  
 article by G. A. Alexandrov, S. A. Medvedev, I. M. Shkretsenko, V. A. Novosibirsk  
 Institute of Chemistry, Siberian Division of the Academy of Sciences of the USSR, Novosibirsk, 1971, p. 221

A study was made of the gas etching of gallium arsenide plates under conditions where the limiting stage of the heterogeneous etching process is mass transport through the gas phase, in particular, the reaction product removal phase. The proportion is introduced that the polishing etching on the etching surface of the concentrations of gallium and arsenic atoms on the etching surface.

It is demonstrated that under ordinary etching conditions, in view of the great difference in molecular weights of gallium ( $Ga$  and  $GaH_3$ ) and arsenic ( $As$  and  $AsH_3$ ) reaction products there is a great difference in their diffusion coefficients as a result of which arsenic is accumulated on the etching surface.

With respect to the known etching reaction constants, the partial pressures of the different gallium and arsenic reaction products were determined and under the assumption of uniform convective diffusion through the boundary layer, the gas etching compositions were calculated on etching by which the ratio of  $Ga/As$  in the gas phase on the etching surface will be close to one and, consequently, the polishing etching mode must occur.

The conditions of polishing etching of hydrogen chloride containing the corrections of the derived relations were defined experimentally.

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USSR

MEDVEDEV, S. S.

"Graphic Method of Minimization of Boolean Functions of a Large Number of Arguments"

Prikl. Matematika. Vyp. 3 [Applied Mathematics, No 3 -- Collection of Works],  
Irkutsk, 1971, pp 111-120, (Translated from Referativnyy Zhurnal, Kibernetika,  
No 3, 1972, Abstract No 3 V340).

NO ABSTRACT.